AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1 (currently amended). A compound of formula I,

wherein

 R^1 represents C_{1-12} alkyl, C_{3-12} cycloalkyl, $-(CH_2)_a$ -aryl, or $(CH_2)_a$ Het¹ (all of which are optionally substituted by one or more substituents selected from -OH, halo, cyano, nitro, C_{1-4} alkyl, C_{3-4} cycloalkyl and/or C_{1-4} alkoxy or C_{3-4} cycloalkoxy);

a represents 0, 1, 2, 3, or 4;

Het¹ represents a five to ten-membered heterocyclic ring containing one or more heteroatoms selected from oxygen, nitrogen and/or sulfur, and which also optionally includes one or more =O substituents;

X represents O or S;

 R^{5a} and R^{5b} independently represent H , $\mathsf{C}_{1\cdot3}$ alkyl or C_3 cycloalkoxy;

 R^2 and R^3 independently represent H, C_{1-4} alkyl (optionally substituted with one or more nitro or cyano groups), C_{3-4} cycloalkyl, OR^7 , $N(R^{7a})R^{7b}$, $OC(O)R^8$ or together form - $O-(CH_2)_2-O-$, $-(CH_2)_3-$, $-(CH_2)_4-$ or $-(CH_2)_5-$;

 R^7 and R^8 independently represent H, C_{1-6} alkyl, or -(CH₂)_b-aryl (which latter two groups are optionally substituted by one or more substituents selected from -OH, halo, cyano, nitro, C_{1-4} alkyl, C_{1-4} alkoxy, and/or C_{3-4} cycloalkyl);

R^{7a} and R^{7b} independently represent H, C₁₋₆ alkyl or C₃₋₆ cycloalkyl;

b represents 0, 1, 2, 3 or 4;

R⁴ represents H, C₁₋₆ alkyl or C₃₋₆ cycloalkyl;

D represents H, -OH, or -(CH_2)_cN(R^{10})(R^{11});

c represents 0, 1, 2, 3 or 4;

 $R^{10} \text{ represents H, C}_{1-6} \text{ alkyl, C}_{3-6} \text{ cycloalkyl, -(CH}_2)_d\text{-aryl, -C(NH)NH}_2, -S(O)_2 R^{13}, \\ -[C(O)]_e N(R^{14})(R^{15}), -C(O)R^{16} \text{ or -C(O)OR}^{17};$

e represents 1 or 2;

 R^{11} represents H, C_{1-6} alkyl, $-C(O)R^{18}$ or $-(CH_2)_f$ -aryl (which latter group is optionally substituted by one or more substituents selected from -OH, cyano, halo, amino, nitro, C_{1-6} alkyl , C_{1-6} alkoxy, C_{3-6} cycloalkyl and/or C_{3-6} cycloalkoxy);

 R^{14} , R^{15} , R^{16} , R^{17} and R^{18} independently represent H, C_{1-6} alkyl, C_{3-6} cycloalkyl, Het² or -(CH₂)_g-aryl (which latter three groups are optionally substituted by one or more substituents selected from -OH, cyano, halo, amino, nitro, C_{1-6} alkyl , C_{1-6} alkoxy, C_{3-6} cycloalkyl and/or C_{3-6} cycloalkoxy);

 R^{13} represents C_{1-6} alkyl, C_{3-6} cycloalkyl, aryl or $-(CH_2)_h$ -aryl (all of which are all optionally substituted by one or more substituents chosen from halo, nitro, C_{1-6} alkyl , C_{1-6} alkoxy, C_{3-6} cycloalkyl and/or C_{3-6} cycloalkoxy);

d, f, g and h independently represent 0, 1, 2, 3 or 4;

Het² represents a five to ten-membered heterocyclic ring containing one or more heteroatoms selected from oxygen, nitrogen and/or sulfur, and which also optionally includes one or more =O substituents;

 R^6 represents one or more optional substituents selected from -OH, cyano, halo, amino, nitro, C_{1-6} alkyl (optionally terminated by -N(H)C(O)OR^{18a}), C_{1-6} alkoxy, C_{3-6} cycloalkyl, C_{3-6} cycloalkoxy, -C(O)N(H)R¹⁹, -NHC(O)N(H)R²⁰, -N(H)S(O)₂R²¹ and/or -OS(O)₂R²²;

 R^{19} and R^{20} independently represent H , $C_{1\text{-}6}$ alkyl or $C_{3\text{-}6}$ cycloalkyl;

R^{18a}, R²¹ and R²² independently represent C₁₋₆ alkyl or C₃₋₆ cycloalkyl;

A represents a single bond, C_{1-6} alkylene, $-N(R^{23})(CH_2)_{j^-}$, $-O(CH_2)_{j^-}$ or $-(CH_2)_{j}C(H)(OR^{23})(CH_2)_{k^-}$ $-(CH_2)_{j}C(H)(OR^{23})(CH_2)_{k^-}$ (in which latter three groups, the - $(CH_2)_{j^-}$ group is attached to the bispidine nitrogen atom, and which latter four groups are all optionally substituted by one or more OH groups);

B represents a single bond, C_{1-4} alkylene, $-(CH_2)_mN(R^{24})$ -, $(CH_2)_mS(O)_n$ -, $-(CH_2)_mO$ - (in which three latter groups, the $-(CH_2)_m$ - group is attached to the carbon

atom bearing D and R⁴), -C(O)N(R²⁴)- (in which latter group, the -C(O)- group is attached to the carbon atom bearing D and R⁴), N(R²⁴)C(O)O(CH₂)_m- or -N(R²⁴)(CH₂)_m- (in which latter two groups, the N(R²⁴) group is attached to the carbon atom bearing D and R⁴);

j, k and m independently represent 0, 1, 2, 3 or 4; n represents 0, 1 or 2; $R^{23} \text{ represents H, C}_{1-6} \text{ alkyl, C}_{3-6} \text{ cycloalkyl or C(O)} R^{25}$ $R^{24} \text{ represents H , C}_{1-6} \text{ alkyl or C}_{3-6} \text{ cycloalkyl;}$

 R^{25} represents H, C_{1-6} alkyl, C_{3-6} cycloalkyl, Het^3 or $-(CH_2)_p$ -aryl (which latter two groups are optionally substituted by one or more substituents selected from -OH, cyano, halo, amino, nitro, C_{1-6} alkyl, C_{1-6} alkoxy, C_{3-6} cycloalkyl and/or C_{3-6} cycloalkoxy);

Het³ represents a five to ten-membered heterocyclic ring containing one or more heteroatoms selected from oxygen, nitrogen and/or sulfur, and which also optionally includes one or more =O substituents;

p represents 0, 1, 2, 3 or 4;

or a pharmaceutically acceptable salt, N-oxide or C₁₋₄ alkyl quaternary ammonium derivative thereof:

wherein alkyl groups that R¹, R², R³, R⁴, R^{5a}, R^{5b}, R⁶, R⁷, R^{7a}, R^{7b}, R⁸, R¹⁰, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸, R^{18a}, R¹⁹, R²⁰, R²¹, R²², R²³, R²⁴, R²⁵ and D may represent, and with which R¹, R⁷, R⁸, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸ and R²⁵ may be substituted; and alkoxy groups and that R⁶ may represent, and with which R¹, R⁷, R⁸, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸ and R²⁵ may be substituted, may be linear or, when there is a sufficient number (i.e. three) of carbon atoms, be branched and/or eyelic cycloalkyl or

cycloalkyl with carbon ranges as defined above, and wherein, when there is a sufficient number (i.e. four) of carbon atoms, such alkyl and alkoxy groups may also be part cycloalkyl/acyclic or cycloalkoxy/acyclic, with carbon ranges as defined above, and wherein such alkyl and alkoxy groups may also be saturated or, when there is a sufficient number (i.e. two) of carbon atoms, be unsaturated and/or interrupted by oxygen and/or substituted by one or more fluoro groups; and

wherein alkylene groups that A and B may represent, and –(CH₂)- containing groups that R¹, R² and R³ (together), R⁷, R⁸, R¹⁰, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸, R²⁵, A, B and D may include, may be linear or, when there is a sufficient number (i.e. two) of carbon atoms, be branched, and wherein such alkylene groups and –(CH₂)- containing chains may also be saturated or, when there is a sufficient number (i.e. two) of carbon atoms, be unsaturated and/or interrupted by oxygen;

provided that:

- (a) when D represents either H or -OH, and R^{5a} and R^{5b} both represent H, then at least one of R² and R³ represents OR⁷, OC(O)R⁸ or C₁₋₄ alkyl, which alkyl group is substituted with one or more nitro or cyano groups; and
 - (b) when D represents -OH or -(CH₂)_cN(R¹⁰)R¹¹ in which c represents 0, then:-
- (i) A does not represent $-N(R^{23})(CH_2)_{j^-}$, $-O(CH_2)_{j^-}$ or $-CH_2)_JC(H)(OR^{23})(CH_2)_{k^-}$ (in which k is 0); and/or
- (ii) m does not represent 0 when B represents - $(CH_2)_mN(R^{24})$ -, - $(CH_2)_mS(O)_n$ -or - $(CH_2)_mO$ -.

2 (currently amended). A compound as claimed in Claim 1, wherein R^1 represents optionally substituted -(CH_2)_a-phenyl, in which a is 0, 1, 2 or 3, or optionally substituted, optionally unsaturated, linear, branched or cyclic, C_{1-18} alkyl or C_{3-18} cycloalkyl (which latter C_{1-18} alkyl or C_{3-18} cycloalkyl group may also be interrupted by an oxygen atom).

3 (previously presented). A compound as claimed in Claim 1, wherein R² represents H, OR⁷, -CH₂NO₂ or -OC(O)R⁸ or together with R³-O-(CH₂)₂-O-.

4 (previously presented). A compound as claimed in Claim 1, wherein R³ represents H, OR⁷, C₁₋₄ alkyl or together with R² represents -O-(CH₂)₂-O-.

5 (previously presented). A compound as claimed in Claim 1, wherein R^4 represents H or C_{1-2} alkyl.

6 (previously presented). A compound as claimed in Claim 1, wherein R^{5a} and R^{5b} either both represent H or both represent methyl.

7 (previously presented). A compound as claimed in Claim 1, wherein R^6 represents one or more substituents selected from $C_{1.6}$ alkyl, cyano, nitro, amino or $C(O)N(H)R^{19}$ or $N(H)S(O)_2R^{21}$.

8 (previously presented). A compound as claimed in Claim 1, wherein X represents O.

9 (previously presented). A compound as claimed in Claim 1, wherein A represents a single bond or linear, or branched, C₁₋₄ alkylene (which group is also optionally interrupted by O).

10 (previously presented). A compound as claimed in Claim 1, wherein B represents a single bond, C_{1-4} alkylene, $-(CH_2)_mO$ - or $-(CH_2)_mN(R^{24})$ - (in which latter two cases m is 1, 2 or 3).

11 (previously presented). A compound as claimed in Claim 1, wherein when D represents - $(CH_2)_cN(R^{10})(R^{11})$, c represents 0, 1 or 2.

12 (previously presented). A compound as claimed in Claim 1, wherein when D represents -(CH_2)_cN(R^{10})(R^{11}), R^{10} represents H, C_{1-4} alkyl, - $C(O)R^{16}$ (in which R^{16} is H, C_{1-3} alkyl or Het²), - $C(O)OR^{17}$ (in which R^{17} is C_{1-5} alkyl, phenyl or C_{1-3} alkylphenyl), - $C(NH)NH_2$ or $[C(O)]_eN(H)R_{15}$ (in which R_{15} is H or C_{1-3} alkyl).

13 (previously presented). A compound as claimed in Claim 1, wherein when D represents -(CH) $_c$ N(R¹⁰)(R¹¹), R¹¹ represents H.

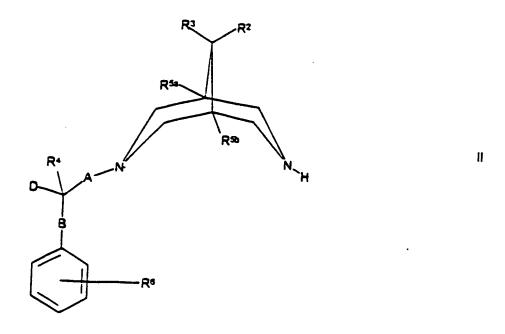
14 (previously presented). A pharmaceutical formulation including a compound as defined in Claim 1 in admixture with a pharmaceutically-acceptable adjuvant, diluent or carrier.

15-19 (cancelled).

20 (previously presented). A method of prophylaxis or treatment of an arrhythmia which method comprises administration of a therapeutically effective amount of a compound as defined in Claim 1 to a person in need thereof.

21 (previously presented) A process for the preparation of a compound of formula I as defined in Claim 1 which comprises:

(a) reaction of a compound of formula II,



wherein R², R³, R⁴, R^{5a}, R^{5b}, R⁶, A, B and D are as defined in Claim 1 with a compound of formula III,

$$R^1XC(O)L^1$$

wherein L¹ represents a leaving group and R' and X are as defined in Claim 1;

(b) for compounds of formula I in which A represents CH₂ and D represents

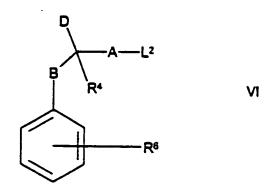
—OH or N(R¹⁰)H, reaction of a compound of formula IV,

wherein R', R^2 , R^3 , R^{5a} , R^{5b} and X are as defined in Claim 1, with a compound of formula V,

wherein Y represents O or $N(R^{10})$ and R^4 , R^6 , R^{10} and B are as defined in Claim

1;

(c) reaction of a compound of formula IV, as defined above, with a compound of formula VI,



wherein L² represents a leaving group and R⁴, R⁶, A, B and D are as defined in Claim 1;

(d) for compounds of formula I in which D represents H or OH and R^4 represents H, reduction of a compound of formula VII,

wherein R', R², R³, R^{5a}, R^{5b}, R⁶, A, B and X are as defined in Claim 1;

(e) for compounds of formula I in which one of R² and R³ represents H or OH and the other represents H, reduction of a corresponding compound of formula VIII,

wherein R^1 , R^4 , R^{5a} , R^{5b} , R^6 , A, B, D and X are as defined in Claim 1;

(f) for compounds of formula I in which R^2 and/or R^3 represents $OC(O)R^8$ and R^8

is as defined in Claim 1, coupling of a corresponding compound of formula I in which R² and/or R³ (as appropriate) represents OH and a compound of formula VIIIA,

wherein R⁸ is as defined in Claim 1;

(g) for compounds of formula I in which D represents —(CH₂)_cNH₂, reduction of a corresponding compound of formula IX,

$$R^{5a}$$
 R^{5a}
 R^{5b}
 R^{5b}
 R^{5b}
 R^{5b}
 R^{5a}
 R^{5b}
 R^{5b}
 R^{5b}
 R^{5b}
 R^{5b}
 R^{5b}
 R^{5b}
 R^{5b}

wherein c, R¹, R², R³, R⁴, R^{5a}, R^{5b}, R⁶, A, B and X are as defined in Claim 1;

(h) for compounds of formula I in which D represents -N(R¹¹)C(O)NH(R¹⁵), in which R¹¹ and R¹⁵ are as defined in Claim 1 except that R¹¹ does not represent C(O)R¹⁸, reaction of a corresponding compound of formula I in which D represents -N(R¹¹)H, in which R¹¹ is as defined in Claim 1 except that is does not represent C(O)R¹⁸ in which R¹⁸ is as defined in Claim 1, with a compound of formula X,

$$R^{15}N=C=O$$
 X

wherein R¹⁵ is as defined in Claim 1;

- (i) for compounds of formula I in which D represents -N(H)[C(O)]₂NH₂,
 reaction of a corresponding compound of formula I in which D represents
 -NH₂ with oxalic acid diamide;
- (j) for compounds of formula I in which D represents -N(R¹¹)C(O)R¹⁶, in which R¹¹ and R¹⁶ are as defined in Claim 1 except that R¹¹ does not represent C(O)R¹⁸, reaction of a corresponding compound of formula I in which D represents -N(R¹¹)H, in which R¹¹ is as defined in Claim 1 except that is does not represent C(O)R¹⁸ in which R¹⁸ is as defined in Claim 1, with a compound of formula XI,

$$R^{16}C(O)R_x$$
 XI

wherein R_x represents a suitable leaving group and R¹⁶ is as defined in Claim 1;

(k) for compounds of formula I in which D represents -N(H)R¹⁰ and R¹⁰ is as defined in Claim 1 except that it does not represent H or -C(NH)NH₂, reaction of a corresponding compound of formula I wherein D represents -NH₂ with a compound of formula XIA,

$$R^{10a}L^1$$
 XIA

wherein R^{10a} represents R^{10} as defined in Claim 1 except that it does not represent H or —C(NH)NH₂ and L¹ is as defined above;

- (I) for compounds of formula I which are bispidine-nitrogen N-oxide derivatives, oxidation of the corresponding bispidine nitrogen of a corresponding compound of formula I;
 - (m) for compounds of formula I which are $C_{1\text{--}4}$ alkyl quaternary ammonium salt

derivatives, in which the alkyl group is attached to a bispidine nitrogen, reaction, at the bispidine nitrogen, of a corresponding compound of formula I with a compound of formula XII,

wherein Ra represents C₁₋₄ alkyl and Hal represents Cl, Br or I;

(n) for compounds of formula I in which D and R^4 both represent H, A represents C_{1^-6} alkylene, B represents $N(R^{24})(CH_2)_m$ and m and R^{24} are as defined in Claim 1, reaction of a compound of formula XIII,

wherein A^a represents C_{1-6} alkylene and R^1 , R^2 , R^3 , R^{5a} , R^{5b} , R^{24} and X are as defined in Claim 1 with a compound of formula XIV,

wherein R⁶, m are as defined in Claim 1 and Hal is as defined above;

(o) reaction of a compound of formula II, as defined above, with a compound of formula XV,

wherein R¹ and X are as defined in Claim 1, in the presence of 1,1'-carbonyldiimidazole;

(p) for compounds of formula I in which one of R² and R³ represents —NH₂ and the other represents H, reduction of a compound of formula XVA,

wherein R¹, R⁴, R^{5a}, R^{5b}, R⁶, A, B, D and X are as defined in Claim 1; or

(q) for compounds of formula I in which one or both of R^2 and R^3 represent - $N(R^{7a})R^{7b}$ in which one or both or R^{7a} and R^{7b} represents C_{1-6} alkyl, alkylation of a corresponding compound of formula I in which R^2 and/or R^3 represent - $N(R^{7a})R^{7b}$ (as appropriate) in which R^{7a} and/or R^{7b} (as appropriate) represent H, using a compound of formula XXIB,

wherein R^{7c} represents C₁₋₆ alkyl and L¹ is as defined above.

22 (currently amended). A compound of formula II

wherein R^{5a} and R^{5b} independently represent H, C₁₋₃ alkyl or C₃ cycloalkoxy;

 R^2 and R^3 independently represent H, C_{1-4} alkyl (optionally substituted with one or more nitro or cyano groups), C_{3-4} cycloalkyl, OR^7 , $N(R^{7a})R^{7b}$, $OC(O)R^8$ or together form - $O-(CH_2)_2-O-$, $-(CH_2)_3-$, $-(CH_2)_4-$ or $-(CH_2)_5-$;

 R^7 and R^8 independently represent H, C_{1-6} alkyl, or -(CH_2)_b-aryl (which latter two groups are optionally substituted by one or more substituents selected from -OH, halo, cyano, nitro, C_{1-4} alkyl, C_{1-4} alkoxy, and/or C_{3-4} cycloalkyl);

 R^{7a} and R^{7b} independently represent H, C_{1-6} alkyl or C_{3-6} cycloalkyl; b represents 0, 1, 2, 3 or 4;

R⁴ represents H, C₁₋₆ alkyl or C₃₋₆ cycloalkyl;

D represents H, -OH, or -(CH_2)_cN(R^{10})(R^{11});

c represents 0, 1, 2, 3 or 4;

 R^{10} represents H, C_{1-6} alkyl, C_{3-6} cycloalkyl, -(CH₂)_d-aryl, -C(NH)NH₂, -S(O)₂R¹³, -[C(O)]_eN(R¹⁴)(R¹⁵), -C(O)R¹⁶ or -C(O)OR¹⁷;

e represents 1 or 2;

 R^{11} represents H, C_{1-6} alkyl, $-C(O)R^{18}$ or $-(CH_2)_f$ -aryl (which latter group is optionally substituted by one or more substituents selected from -OH, cyano, halo, amino, nitro, C_{1-6} alkyl, C_{1-6} alkoxy, C_{3-6} cycloalkyl and/or C_{3-6} cycloalkoxy);

 R^{14} , R^{15} , R^{16} , R^{17} and R^{18} independently represent H, C_{1-6} alkyl, C_{3-6} cycloalkyl, Het² or -(CH₂)_g-aryl (which latter three groups are optionally substituted by one or more substituents selected from -OH, cyano, halo, amino, nitro, C_{1-6} alkyl , C_{1-6} alkoxy, C_{3-6} cycloalkyl and/or C_{3-6} cycloalkoxy);

 R^{13} represents C_{1-6} alkyl, C_{3-6} cycloalkyl, aryl or - $(CH_2)_h$ -aryl (all of which are all optionally substituted by one or more substituents chosen from halo, nitro, C_{1-6} alkyl , C_{1-6} alkoxy, C_{3-6} cycloalkyl and/or C_{3-6} cycloalkoxy);

d, f, g and h independently represent 0, 1, 2, 3 or 4;

Het² represents a five to ten-membered heterocyclic ring containing one or more heteroatoms selected from oxygen, nitrogen and/or sulfur, and which also optionally includes one or more =O substituents:

R⁶ represents one or more optional substituents selected from -OH, cyano, halo, amino, nitro, C₁₋₆ alkyl (optionally terminated by -N(H)C(O)OR^{18a}), C₁₋₆ alkoxy, C₃₋₆

cycloalkyl, C_{3-6} cycloalkoxy, $-C(O)N(H)R^{19}$, $-NHC(O)N(H)R^{20}$, $-N(H)S(O)_2R^{21}$ and/or $-OS(O)_2R^{22}$;

R¹⁹ and R²⁰ independently represent H, C₁₋₆ alkyl or C₃₋₆ cycloalkyl;

 $\mathsf{R}^{18a},\,\mathsf{R}^{21}$ and R^{22} independently represent $\mathsf{C}_{1\text{-}6}$ alkyl or $\mathsf{C}_{3\text{-}6}$ cycloalkyl;

A represents a single bond, C_{1-6} alkylene, $-N(R^{23})(CH_2)_{j^-}$, $-O(CH_2)_{j^-}$ or $-(CH_2)_{j}C(H)(OR^{23})(CH_2)_{k^-}$ (in which latter three groups, the - $(CH_2)_{j^-}$ group is attached to the bispidine nitrogen atom, and which latter four groups are

B represents a single bond, C_{1-4} alkylene, $-(CH_2)_mN(R^{24})$ -, $(CH_2)_mS(O)_n$ -, $-(CH_2)_mO$ - (in which three latter groups, the $-(CH_2)_m$ - group is attached to the carbon atom bearing D and R⁴), $-C(O)N(R^{24})$ - (in which latter group, the -C(O)- group is attached to the carbon atom bearing D and R⁴), $N(R^{24})C(O)O(CH_2)_m$ - or $-N(R^{24})(CH_2)_m$ - (in which latter two groups, the $N(R^{24})$ group is attached to the carbon atom bearing D and R⁴);

j, k and m independently represent 0, 1, 2, 3 or 4;

all optionally substituted by one or more OH groups);

n represents 0, 1 or 2;

R²³ represents H, C₁₋₆ alkyl, C₃₋₆ cycloalkyl or C(O)R²⁵

 R^{24} represents H , C_{1-6} alkyl or C_{3-6} cycloalkyl;

 R^{25} represents H, C_{1-6} alkyl, C_{3-6} cycloalkyl, Het^3 or $-(CH_2)_p$ -aryl (which latter two groups are optionally substituted by one or more substituents selected from -OH, cyano, halo, amino, nitro, C_{1-6} alkyl, C_{1-6} alkoxy, C_{3-6} cycloalkyl and/or C_{3-6} cycloalkoxy);

Het³ represents a five to ten-membered heterocyclic ring containing one or more heteroatoms selected from oxygen, nitrogen and/or sulfur, and which also optionally includes one or more =O substituents;

p represents 0, 1, 2, 3 or 4;

wherein alkyl groups that R², R³, R⁴, R^{5a}, R^{5b}, R⁶, R⁷, R^{7a}, R^{7b}, R⁸, R¹⁰, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸, R^{18a}, R¹⁹, R²⁰, R²¹, R²², R²³, R²⁴, R²⁵ and D may represent, and with which R⁷, R⁸, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸ and R²⁵ may be substituted; and alkoxy groups and that R⁶ may represent, and with which R⁷, R⁸, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸ and R²⁵ may be substituted, may be linear or, when there is a sufficient number (i.e. three) of carbon atoms, be branched and/or eyelie cycloalkyl or cycloalkoxy with carbon ranges as defined above, and wherein, when there is a sufficient number (i.e. four) of carbon atoms, such alkyl and alkoxy groups may also be part eyelic/aeyelie cycloalkyl/acyclic or cycloalkoxy/acyclic with carbon ranges as defined above, and wherein such alkyl and alkoxy groups may also be saturated or, when there is a sufficient number (i.e. two) of carbon atoms, be unsaturated and/or interrupted by oxygen and/or substituted by one or more fluoro groups; and

wherein alkylene groups that A and B may represent, and –(CH₂)- containing groups that R² and R³ (together), R⁷, R⁸, R¹⁰, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸, R²⁵, A, B and D may include, may be linear or, when there is a sufficient number (i.e. two) of carbon atoms, be branched, and wherein such alkylene groups and –(CH₂)- containing chains may also be saturated or, when there is a sufficient number (i.e. two) of carbon atoms, be unsaturated and/or interrupted by oxygen,

provided that when R^{5a} and R^{5b} both represent H, then D does not represent H or OH.

23 (currently amended). A compound of formula IV

wherein R^1 represents C_{1-12} alkyl, C_{3-12} cycloalkyl, $-(CH_2)_a$ -aryl, or $(CH_2)_a$ Het¹ (all of which are optionally substituted by one or more substituents selected from -OH, halo, cyano, nitro, C_{1-4} alkyl, C_{3-4} cycloalkyl and/or C_{1-4} alkoxy or C_{3-4} cycloalkoxy);

a represents 0, 1, 2, 3, or 4;

Het¹ represents a five to ten-membered heterocyclic ring containing one or more heteroatoms selected from oxygen, nitrogen and/or sulfur, and which also optionally includes one or more =O substituents;

X represents O or S;

R^{5a} and R^{5b} independently represent H, C₁₋₃ alkyl or C₃ cycloalkoxy;

 R^2 and R^3 independently represent H, C_{1-4} alkyl (optionally substituted with one or more nitro or cyano groups), C_{3-4} cycloalkyl, OR^7 , $N(R^{7a})R^{7b}$, $OC(O)R^8$ or together form - $O-(CH_2)_2-O-$, $-(CH_2)_3-$, $-(CH_2)_4-$ or $-(CH_2)_5-$;

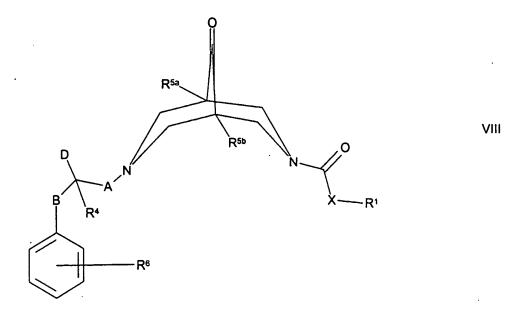
 R^7 and R^8 independently represent H, C_{1-6} alkyl, or -(CH_2)_b-aryl or (which latter two groups are optionally substituted by one or more substituents selected from -OH, halo, cyano, nitro, C_{1-4} alkyl, C_{1-4} alkoxy, and/or C_{3-4} cycloalkyl);

 R^{7a} and R^{7b} independently represent H, C_{1-6} alkyl or C_{3-6} cycloalkyl; b represents 0, 1, 2, 3 or 4;

wherein alkyl groups that R¹, R², R³, R⁵a, R⁵b, R², R²a, R²b and R³ may represent, and with which R¹, R² and R³ may be substituted; and alkoxy groups and with which R¹, R² and R³ may be substituted, may be linear or, when there is a sufficient number (i.e. three) of carbon atoms, be branched and/or eyelie cycloalkyl or cycloalkoxy with carbon ranges as defined above, and wherein, when there is a sufficient number (i.e. four) of carbon atoms, such alkyl and alkoxy groups may also be part eyelie/aeyelie cycloalkyl/acyclic or cycloalkoxy/acyclic with carbon ranges as defined above, and wherein such alkyl and alkoxy groups may also be saturated or, when there is a sufficient number (i.e. two) of carbon atoms, be unsaturated and/or interrupted by oxygen and/or substituted by one or more fluoro groups;

provided that when R^{5a} and R^{5b} both represent H, then at least one of R^2 and R^3 represents OR^7 , $OC(O)R^8$ or C_{1-4} alkyl, which alkyl group is substituted with one or more nitro or cyano groups.

24 (currently amended). A compound of formula VIII



wherein R^1 represents C_{1-12} alkyl, C_{3-12} cycloalkyl, -(CH_2)_a-aryl, or $(CH_2)_aHet^1$ (all of which are optionally substituted by one or more substituents selected from -OH, halo, cyano, nitro, C_{1-4} alkyl, C_{3-4} cycloalkyl and/or C_{1-4} alkoxy or C_{3-4} cycloalkoxy);

a represents 0, 1, 2, 3, or 4;

Het¹ represents a five to ten-membered heterocyclic ring containing one or more heteroatoms selected from oxygen, nitrogen and/or sulfur, and which also optionally includes one or more =O substituents;

X represents O or S;

 R^{5a} and R^{5b} independently represent H, $\mathsf{C}_{1\text{-}3}$ alkyl or C_3 cycloalkoxy;

R⁴ represents H, C₁₋₆ alkyl or C₃₋₆ cycloalkyl;

D represents H, -OH, or -(CH_2)_cN(R^{10})(R^{11});

c represents 0, 1, 2, 3 or 4;

 R^{10} represents H, C_{1-6} alkyl, C_{3-6} cycloalkyl, -(CH₂)_d-aryl, -C(NH)NH₂, -S(O)₂R¹³, -[C(O)]_eN(R¹⁴)(R¹⁵), -C(O)R¹⁶ or -C(O)OR¹⁷;

e represents 1 or 2;

 R^{11} represents H, C_{1-6} alkyl, $-C(O)R^{18}$ or $-(CH_2)_f$ -aryl (which latter group is optionally substituted by one or more substituents selected from -OH, cyano, halo, amino, nitro, C_{1-6} alkyl , C_{1-6} alkoxy, C_{3-6} cycloalkyl and/or C_{3-6} cycloalkoxy);

 R^{14} , R^{15} , R^{16} , R^{17} and R^{18} independently represent H, C_{1-6} alkyl, C_{3-6} cycloalkyl, Het² or -(CH₂)_g-aryl (which latter three groups are optionally substituted by one or more substituents selected from -OH, cyano, halo, amino, nitro, C_{1-6} alkyl , C_{1-6} alkoxy, C_{3-6} cycloalkyl and/or C_{3-6} cycloalkoxy);

 R^{13} represents C_{1-6} alkyl, C_{3-6} cycloalkyl, aryl or $-(CH_2)_h$ -aryl (all of which are all optionally substituted by one or more substituents chosen from halo, nitro, C_{1-6} alkyl , C_{1-6} alkoxy, C_{3-6} cycloalkyl and/or C_{3-6} cycloalkoxy);

d, f, g and h independently represent 0, 1, 2, 3 or 4;

Het² represents a five to ten-membered heterocyclic ring containing one or more heteroatoms selected from oxygen, nitrogen and/or sulfur, and which also optionally includes one or more =O substituents;

 R^6 represents one or more optional substituents selected from -OH, cyano, halo, amino, nitro, C_{1-6} alkyl (optionally terminated by -N(H)C(O)OR^{18a}), C_{1-6} alkoxy, C_{3-6} cycloalkyl, C_{3-6} cycloalkoxy, -C(O)N(H)R¹⁹, -NHC(O)N(H)R²⁰, -N(H)S(O)₂R²¹ and/or -OS(O)₂R²²;

 R^{19} and R^{20} independently represent H, C_{1-6} alkyl or C_{3-6} cycloalkyl; R^{18a} . R^{21} and R^{22} independently represent C_{1-6} alkyl or C_{3-6} cycloalkyl;

A represents a single bond, C_{1-6} alkylene, $-N(R^{23})(CH_2)_{j^-}$, $-O(CH_2)_{j^-}$ or $-(CH_2)_{j^-}C(H)(OR^{23})(CH_2)_{k^-}$ $-(CH_2)_{j^-}C(H)(OR^{23})(CH_2)_{k^-}$ (in which latter three groups, the - $(CH_2)_{j^-}$ group is attached to the bispidine nitrogen atom, and which latter four groups are all optionally substituted by one or more OH groups);

B represents a single bond, C_{1-4} alkylene, $-(CH_2)_mN(R^{24})$ -, $(CH_2)_mS(O)_n$ -, $-(CH_2)_mO$ - (in which three latter groups, the $-(CH_2)_m$ - group is attached to the carbon atom bearing D and R⁴), $-C(O)N(R^{24})$ - (in which latter group, the -C(O)- group is attached to the carbon atom bearing D and R⁴), $N(R^{24})C(O)O(CH_2)_m$ - or $-N(R^{24})(CH_2)_m$ - (in which latter two groups, the $N(R^{24})$ group is attached to the carbon atom bearing D and R⁴);

j, k and m independently represent 0, 1, 2, 3 or 4;

n represents 0, 1 or 2;

R²³ represents H, C₁₋₆ alkyl, C₃₋₆ cycloalkyl or C(O)R²⁵

 R^{24} represents H , C_{1-6} alkyl or C_{3-6} cycloalkyl;

 R^{25} represents H, C_{1-6} alkyl, C_{3-6} cycloalkyl, Het^3 or $-(CH_2)_p$ -aryl (which latter two groups are optionally substituted by one or more substituents selected from -OH, cyano, halo, amino, nitro, C_{1-6} alkyl, C_{1-6} alkoxy, C_{3-6} cycloalkyl and/or C_{3-6} cycloalkoxy);

Het³ represents a five to ten-membered heterocyclic ring containing one or more heteroatoms selected from oxygen, nitrogen and/or sulfur, and which also optionally includes one or more =O substituents;

p represents 0, 1, 2, 3 or 4;

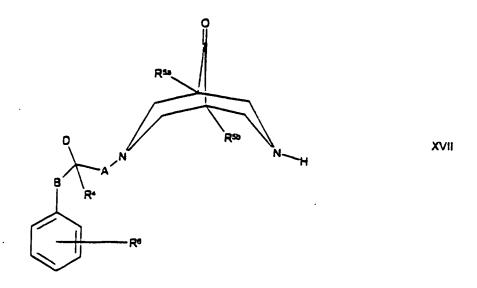
wherein alkyl groups that R¹, R⁴, R^{5a}, R^{5b}, R⁶, R⁷, R^{7a}, R^{7b}, R⁸, R¹⁰, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸, R^{18a}, R¹⁹, R²⁰, R²¹, R²², R²³, R²⁴, R²⁵ and D may represent, and with

which R¹, R⁷, R⁸, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸ and R²⁵ may be substituted; and alkoxy groups and that R⁶ may represent, and with which R¹, R⁷, R⁸, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸ and R²⁵ may be substituted, may be linear or, when there is a sufficient number (i.e. three) of carbon atoms, be branched and/or eyelic cycloalkyl or cycloalkoxy with carbon ranges as defined above, and wherein, when there is a sufficient number (i.e. four) of carbon atoms, such alkyl and alkoxy groups may also be part eyelic/aeyelic cycloalkyl/acyclic or cycloalkoxy/acyclic with carbon ranges as defined above, and wherein such alkyl and alkoxy groups may also be saturated or, when there is a sufficient number (i.e. two) of carbon atoms, be unsaturated and/or interrupted by oxygen and/or substituted by one or more fluoro groups; and

wherein alkylene groups that A and B may represent, and –(CH₂)- containing groups that R¹, R⁷, R⁸, R¹⁰, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸, R²⁵, A, B and D may include, may be linear or, when there is a sufficient number (i.e. two) of carbon atoms, be branched, and wherein such alkylene groups and –(CH₂)- containing chains may also be saturated or, when there is a sufficient number (i.e. two) of carbon atoms, be unsaturated and/or interrupted by oxygen,

provided that when R^{5a} and R^{5b} both represent H, then D does not represent H or OH.

25 (previously presented). A compound of formula XVII,



wherein R^4 , R^{5a} , R^{5b} , R^6 , A, B and D are as defined in Claim 1, provided that when R^{5a} and R^{5b} both represent H, then D does not represent H or OH.

26 (currently amended). A process for the preparation of a compound of formula VIII,

wherein R^1 represents C_{1-12} alkyl, C_{3-12} cycloalkyl, -(CH_2)_a-aryl, or (CH_2)_aHet¹ (all of which are optionally substituted by one or more substituents selected from -OH, halo, cyano, nitro, C_{1-4} alkyl, C_{3-4} cycloalkyl and/or C_{1-4} alkoxy or C_{3-4} cycloalkoxy);

a represents 0, 1, 2, 3, or 4;

Het¹ represents a five to ten-membered heterocyclic ring containing one or more heteroatoms selected from oxygen, nitrogen and/or sulfur, and which also optionally includes one or more =O substituents;

X represents O or S;

R^{5a} and R^{5b} independently represent H, C₁₋₃ alkyl or C₃ cycloalkoxy;

R⁴ represents H, C₁₋₆ alkyl or C₃₋₆ cycloalkyl;

D represents H, -OH, or -(CH_2)_cN(R^{10})(R^{11});

c represents 0, 1, 2, 3 or 4;

 $R^{10} \text{ represents H, C}_{1\text{-}6} \text{ alkyl, C}_{3\text{-}6} \text{ cycloalkyl, -(CH}_2)_d\text{-aryl, -C(NH)NH}_2, -S(O)_2R^{13}, \\ -[C(O)]_eN(R^{14})(R^{15}), -C(O)R^{16} \text{ or -C(O)OR}^{17};$

e represents 1 or 2;

 R^{11} represents H, C_{1-6} alkyl, $-C(O)R^{18}$ or $-(CH_2)_f$ -aryl (which latter group is optionally substituted by one or more substituents selected from -OH, cyano, halo, amino, nitro, C_{1-6} alkyl , C_{1-6} alkoxy, C_{3-6} cycloalkyl and/or C_{3-6} cycloalkoxy);

 R^{14} , R^{15} , R^{16} , R^{17} and R^{18} independently represent H, C_{1-6} alkyl, C_{3-6} cycloalkyl, Het² or -(CH₂)_g-aryl (which latter three groups are optionally substituted by one or more substituents selected from -OH, cyano, halo, amino, nitro, C_{1-6} alkyl , C_{1-6} alkoxy, C_{3-6} cycloalkyl and/or C_{3-6} cycloalkoxy);

 R^{13} represents C_{1-6} alkyl, C_{3-6} cycloalkyl, aryl or - $(CH_2)_h$ -aryl (all of which are all optionally substituted by one or more substituents chosen from halo, nitro, C_{1-6} alkyl , C_{1-6} alkoxy, C_{3-6} cycloalkyl and/or C_{3-6} cycloalkoxy);

d, f, g and h independently represent 0, 1, 2, 3 or 4;

Het² represents a five to ten-membered heterocyclic ring containing one or more heteroatoms selected from oxygen, nitrogen and/or sulfur, and which also optionally includes one or more =O substituents;

 R^6 represents one or more optional substituents selected from -OH, cyano, halo, amino, nitro, C_{1-6} alkyl (optionally terminated by -N(H)C(O)OR^{18a}), C_{1-6} alkoxy, C_{3-6} cycloalkyl, C_{3-6} cycloalkoxy, -C(O)N(H)R¹⁹, -NHC(O)N(H)R²⁰, -N(H)S(O)₂R²¹ and/or -OS(O)₂R²²;

 $R^{19}\, \text{and}\,\, R^{20}\, \text{independently represent}\,\, H\,$, $C_{\text{1-6}}\, \text{alkyl}\, \, \text{or}\,\, C_{3\text{-6}}\, \, \text{cycloalkyl};$

R^{18a}, R²¹ and R²² independently represent C₁₋₆ alkyl or C₃₋₆ cycloalkyl;

A represents a single bond, C_{1-6} alkylene, $-N(R^{23})(CH_2)_{j^-}$, $-O(CH_2)_{j^-}$ or $-(CH_2)_{j}C(H)(OR^{23})(CH_2)_{k^-}$ $-(CH_2)_{j}C(H)(OR^{23})(CH_2)_{k^-}$ (in which latter three groups, the - $(CH_2)_{j^-}$ group is attached to the bispidine nitrogen atom, and which latter four groups are all optionally substituted by one or more OH groups);

B represents a single bond, C_{1-4} alkylene, $-(CH_2)_mN(R^{24})$ -, $(CH_2)_mS(O)_n$ -, $-(CH_2)_mO$ - (in which three latter groups, the $-(CH_2)_m$ - group is attached to the carbon atom bearing D and R⁴), $-C(O)N(R^{24})$ - (in which latter group, the -C(O)- group is attached to the carbon atom bearing D and R⁴), $N(R^{24})C(O)O(CH_2)_m$ - or $-N(R^{24})(CH_2)_m$ - (in which latter two groups, the $N(R^{24})$ group is attached to the carbon atom bearing D and R⁴):

j, k and m independently represent 0, 1, 2, 3 or 4; n represents 0, 1 or 2; $R^{23} \text{ represents H, C}_{1-6} \text{ alkyl, C}_{3-6} \text{ cycloalkyl or C(O)} R^{25}$ $R^{24} \text{ represents H , C}_{1-6} \text{ alkyl or C}_{3-6} \text{ cycloalkyl;}$

 R^{25} represents H, C_{1-6} alkyl, C_{3-6} cycloalkyl, Het^3 or $-(CH_2)_p$ -aryl (which latter two groups are optionally substituted by one or more substituents selected from -OH, cyano, halo, amino, nitro, C_{1-6} alkyl, C_{1-6} alkoxy, C_{3-6} cycloalkyl and/or C_{3-6} cycloalkoxy);

Het³ represents a five to ten-membered heterocyclic ring containing one or more heteroatoms selected from oxygen, nitrogen and/or sulfur, and which also optionally includes one or more =O substituents;

p represents 0, 1, 2, 3 or 4;

wherein alkylene groups that A and B may represent, and –(CH₂)- containing groups that R¹, R⁷, R⁸, R¹⁰, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸, R²⁵, A, B and D may include, may be linear or, when there is a sufficient number (i.e. two) of carbon atoms, be branched, and wherein such alkylene groups and –(CH₂)- containing chains may also be saturated or, when there is a sufficient number (i.e. two) of carbon atoms, be unsaturated and/or interrupted by oxygen,

provided that when R^{5a} and R^{5b} both represent H, then D does not represent H or OH, or

a compound of formula XVII,

wherein R⁴, R^{5a}, R^{5b}, R⁶, A, B and D are as defined in Claim 1, provided that when R^{5a} and R^{5b} both represent H, then D does not represent H or OH, which comprises reaction of a compound of formula XXIX,

wherein R^Z represents H or -C(O)XR¹ and R¹, R^{5a}, R^{5b} and X are as defined in Claim 1 with a compound of formula XXX,

wherein R^4 , R^6 , A, B and D are as defined in Claim 1, in the presence of a formaldehyde.

27 (previously presented). A method as claimed in Claim 20, wherein the arrhythmia is an atrial or a ventricular arrhythmia.